Amendments to the Claims:

This listing of claims will replace all prior version, and listings, of claims in the application:

Listing of Claims:

WHAT IS CLAIMED IS:

1. (currently amended) A system for optical detection comprising:

a planar waveguide optical coupler for combining an input signal and a local oscillator signal into a combined optical signal, said planar waveguide optical coupler having a first output for outputting a first beam of said combined optical signal;

a polarization rotator ~~directly adjacent~~ attached to said first output of said planar waveguide optical coupler;

a polarizing beam splitter ~~directly adjacent~~ attached to said polarization rotator for splitting a beam based on its state of polarization, said polarizing beam splitter being optically connected to said first output of said planar waveguide optical coupler to receive said first beam, said polarizing beam splitter outputting two polarized portions of said first beam; and

first and second optical detectors that are optically connected to detect a different one of said two polarized portions of said first beam, said first and second optical detectors generating electrical signals in response to respective ones of said two polarized portions of said first beam;

wherein said polarization rotator is located between said planar waveguide optical coupler and said polarizing beam splitter.

2. (canceled)

3. (canceled)

4. (original) The system of claim 1 wherein said polarizing beam splitter is a walk-off crystal.

5. (original) The system of claim 1 wherein:

said planar waveguide optical coupler includes a second output for outputting a second beam of said combined optical signal;

said polarizing beam splitter being optically connected to said second output of said planar waveguide optical coupler to receive said second beam, said polarizing beam splitter outputting two polarized portions of said second beam; and

third and fourth optical detectors optically connected to detect a different one of said two polarized portions of said second beam, said third and fourth optical detectors generating electrical signals in response to respective ones of said two polarized portions of said second beam.

6. (original) The system of claim 1 further including a processor for receiving said electrical signals from said optical detectors and for generating an output signal that is indicative of an optical parameter of said input signal, wherein said processor monitors a heterodyne beat signal that is a component of said combined optical signal.

7. (canceled)

8. (currently amended) A system for optical spectrum analysis comprising:

a planar waveguide optical coupler for combining an input signal and a swept local oscillator signal into a combined optical signal, said planar waveguide optical coupler having a first output for outputting a first beam of said combined optical signal;

a polarization rotator ~~directly adjacent~~ attached to said first output of said planar waveguide optical coupler;

a polarizing beam splitter ~~directly adjacent~~ attached to said polarization rotator for splitting a beam based on its state of polarization, said polarizing beam splitter being optically connected to said first output of said planar waveguide optical coupler to receive said first beam, said polarizing beam splitter outputting two polarized portions of said first beam; and

first and second optical detectors that are optically connected to detect a different one of said two polarized portions of said first beam, said first and second optical detectors generating electrical signals in response to respective ones of said two polarized portions of said first beam;

wherein said polarization rotator is located between said planar waveguide optical coupler and said polarizing beam splitter.

9. (canceled)

10. (canceled)

11. (canceled)

12. (original) The system of claim 8 wherein said polarizing beam splitter is a walk-off crystal.

13. (original) The system of claim 8 wherein:

said planar waveguide optical coupler includes a second output for outputting a second beam of said combined optical signal;

said polarizing beam splitter being optically connected to said second output of said planar waveguide optical coupler to receive said second beam, said polarizing beam splitter outputting two polarized portions of said second beam; and

third and fourth optical detectors optically connected to detect a different one of said two polarized portions of said second beam, said third and fourth optical detectors generating electrical signals in response to respective ones of said two polarized portions of said second beam.

14. (original) The system of claim 13 further including a processor for receiving said electrical signals from said optical detectors and for generating an output signal that is indicative of an optical parameter of said input signal, wherein said processor monitors a heterodyne beat signal that is a component of said combined optical signal.

15. (original) The system of claim 13 further including a fiber holder that aligns first, second, third, and fourth fibers to the output points of said polarized portions of said first and second beams.

16. (original) The system of claim 8 further including a lens located between said polarizing beam splitter and said first and second optical detectors for directing said two polarized portions of said first beam into first and second optical fibers that are optically connected to said first and second optical detectors.

17. (original) The system of claim 8 further including a tunable laser optically connected to said planar waveguide optical coupler for generating said swept local oscillator signal.

18. (canceled)

19. (original) The system of claim 8 further including an attenuator connected to attenuate said input signal before said input signal reaches said planar waveguide optical coupler.

20. (original) The system of claim 8 further including a tunable optical filter connected to attenuate said input signal before said input signal reaches said planar waveguide optical coupler.